

BEFORE THE
POSTAL REGULATORY COMMISSION
WASHINGTON, D.C. 20268-0001

PERIODIC REPORTING
(PROPOSAL NINE)

Docket No. RM2020-1

**RESPONSE OF THE UNITED STATES POSTAL SERVICE
TO QUESTION 1 OF CHAIRMAN'S INFORMATION REQUEST NO. 2**
(March 18, 2020)

The United States Postal Service hereby provides its response to the above listed question of Chairman's Information Request No. 1, issued March 11, 2020. The questions are stated verbatim and followed by the response.

Respectfully submitted,

UNITED STATES POSTAL SERVICE

By its attorney:

Eric P. Koetting

475 L'Enfant Plaza West, S.W.
Washington, D.C. 20260-1137
(202) 277-6333
eric.p.koetting@usps.gov
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1. Please refer to the 2019 Facility Space Usage Study attached to the Petition.
 - a. On page 22, the Postal Service states “[t]here were some eFMS mail processing facility records that were found over the course of this project that were not included in the original sample. For example, there are a handful of air mail centers and air mail facilities (AMC/F) that still exist, but were not identified when the original sample was developed. The activities performed at these facilities would be the same as activities that might occur at other plants that are located in close proximity to an airport or are on airport property. Consequently, these facilities were added to the list of mail processing facilities after the fact and were included in the various strata based on the size of the facility.”
 - i. How many air mail centers and air mail facilities were not identified when the original sample was developed?
 - ii. Are air mail centers and air mail facilities functionally different than other processing facilities? If so, please explain.
 - iii. Aside from air mail centers and air mail facilities, were there other types of facilities excluded as well? If so, what types and how many of each type?
 - iv. Are the excluded facilities added to the list of mail processing facilities before or after the sample size selection and data collection?
 - v. How does their inclusion/exclusion effect the estimators?
 - vi. Please confirm that there are two different N_h 's, one without the AMC/F and one with the AMC/F. If not confirmed, please explain.
 - vii. Specifically, with the two different N , do the realizations of the estimators differ substantially? How about the sample size allocation?
 - b. Please show the calculations for Neyman allocation for the mail processing sample design. Please also provide S_h 's used to calculate the sample size allocation. These would be the ones developed using the proxies (quantities of the four major equipment types).
 - c. Please confirm that the overall sample size for mail processing sample is calculated to produce CV 's of less than 5 percent for the DBCS and AFSM 100 proxies, and provide the explicit formula and calculation for sample size determination for the mail processing sample.
 - d. In the “FACILITY SPACE SUMMARY.xlsx, the workbook tab 'Sample Strata'” file, for strata 1-11 has different sizes for N_h and n_h versus Table 2 on page 11. The differing sizes for N_h 's can be explained by the units left out, such as the AMC/Fs and facility activation/deactivation. Please confirm that this is the reason for the inconsistencies in the population

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counts. Please also explain why the sample size increased for several strata and by six overall.

RESPONSE:

a. Some facilities and the space associated with those facilities were added to and removed from the mail processing analysis after the sample frame had been developed. These facility adjustments are summarized in Table 1 below.

**Table 1:
Mail Processing Facility Sample Adjustments**

Facility Type	Sampled Space (Sq. Ft.)	PSUs Added	Added Space (Sq. Ft.)	Percent of Total	PSUs Removed	Removed Space (Sq. Ft.)
All	101,750,308					
AMC/F		3	136,391	0.13%	0	0
Facility Deactivations		0	0	0.00%	3	(368,598)
CSF		2	93,811	0.09%	0	0
DDC		1	18,612	0.02%	0	0
MPF		3	115,645	0.11%	0	0
P&DC/F		3	136,302	0.13%	0	0
Transportation Hub		2	53,063	0.05%	0	0
Total		14	553,824	0.54%	3	(368,598)
Net		11	185,226	0.18%	0	0

a(i). In the Facility Space Usage Study (FSUS), the mail processing primary sampling unit (PSU) was the "facility group," which consisted of a mail processing facility, such as a processing and distribution center / facility (P&DC/F), and its associated annexes.

The original mail processing facility list included one air mail center / facility (AMC/F). The space for three additional AMC/Fs were added to Stratum 1 as individual facility groups and accounted for 136,391 square feet of space. In total, the space for

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the added facilities represented 0.13 percent of the total sampled mail processing space (101,750,308 square feet).

a(ii). The operations performed at these facilities are similar to the platform operations that are performed at other mail processing facilities. In the 1999 study, 97 facilities were classified as AMC/Fs. The number of AMC/F facilities from the 2019 study was much smaller due to mail processing equipment and postal transportation changes that have taken place since the previous study was conducted. For example, most mail processing facilities now contain scan-where-you-band (SWYB) equipment that can be used to facilitate the preparation of mail for air transportation. It is therefore not necessary to perform those activities at AMC/Fs. In addition, the Postal Service has expanded its use of air network contracts since the last study was conducted.

a(iii). No facilities were intentionally excluded from the FSUS. At various points during the study, however, it became apparent that some adjustments needed to be made to the list of mail processing facilities. These adjustments are also shown in Table 1.

Facility Deactivations: Three facilities (1 Delivery Distribution Center, or DDC, 1 Mail Processing Facility, or MPF, and 1 P&DF) were deactivated between the sample development and implementation. All three facilities were removed from Stratum 1. The DDC accounted for 132,284 square feet of space. The MPF accounted for 162,529 square feet of space. The P&DF accounted for 73,785 square feet of space. In total, these deletions represented 0.36 percent of sampled space.

Missing Facilities: Management Operating Data System (MODS) data were used to construct the original sample. The sample did not include some small mail

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processing facilities because these facilities were "non-MODS" facilities. During the course of completing this project, it was discovered after a review of the webEOR data that some of the smaller facilities were missing. In total, 11 non-MODS mail processing facilities were incorporated into the mail processing sample, all of which were small facilities assigned to Stratum 1.

Two customer service facilities (CSF) accounted for 93,811 square feet of space, which was 0.09 percent of the total sampled mail processing space. One DDC accounted for 18,612 square feet of space, or 0.02 percent of the total sampled mail processing space. Three MPFs accounted for 115,645 square feet of space, which was 0.11 percent of the total sampled mail processing space. Three additional P&DFs accounted for 136,302 square feet of space, which was 0.13 percent of the total sampled mail processing space. Finally, two transfer hubs accounted for 53,063 square feet of space, which was 0.052 percent of the total sampled mail processing space. The operations performed at these facilities are similar to the platform operations that are performed at other mail processing facilities.

Facility Activations: Two mail processing facilities (1 annex and 1 P&DC) were selected in the original Stratum 3 sample, but were replaced by new facilities that were being activated in those same locations during the time period in which the study was conducted. The new facilities were included in the sample in place of their predecessors, without affecting the number of facility groups (PSUs) in the sample frame or the sample.

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a(iv). The adjustments described above were made after the sample frame was established, and accounted for a net increase of 11 primary sampling units and 185,226 square feet of space, or 0.18 percent of the total sampled mail processing space. The adjustments related to facility activations, facility deactivations, and some of the missing facilities were made during the data collection process as these issues were discovered.

a(v). The adjustments described above involved a small fraction of the total sampled mail processing space (0.18 percent). The additional facility groups were all added to Stratum 1, which had the largest facility group population. It therefore would not be expected that the statistics related to these adjustments would have a significant impact on the results had they been included in the original sample frame.

a(vi). Not confirmed. The three AMC/Fs that were incorporated into the analysis contributed to the difference in population values, but the adjustments that were made to other facility types also had an impact on the difference, as described in the response to part a(iv).

Table 2 in the FSUS report contained an error. The number of facility groups in the final Stratum 3 sample frame was 37, not 38. The total sample frame population was therefore 260. Also, one facility from the Stratum 3 frame was closed after the sample frame was developed, but before the completion of the study. The 'Sample Strata' worksheet in the Facility Space Summary file showed that the facility group population was 270.

The original sample frame indicated that the Stratum 1 population was 75. The 'Sample Strata' worksheet in the Facility Space Summary file showed that the Stratum 1 facility group population was 86. As described above, 14 new facility groups were

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established in Stratum 1 (3 AMC/F, 2 CSF, 1 DDC, 3 MPF, 3 P&DF, and 2 transportation hubs). In addition, three deactivated P&DFs were removed from Stratum 1. The net change in the Stratum 1 facility group population ($14 - 3 = 11$) was therefore solely responsible for the net change in the total facility group population ($270 - 260 - 1 = 11$).

a(vii). Please see the response to 1a(v). Question 1a and the response to question 1a illustrate a primary challenge associated with the FSUS. The number of facilities, facility space, and equipment housed in that facility space are constantly changing over time. An attempt could have been made to estimate the facility space at the specific time that the sample frame was developed (FY 2017, Quarter 2), but when the study was completed over two years later, the space distribution would have already been somewhat outdated.

The Postal Service made the decision to use the original sample frame as a baseline during the data collection process despite the issues described above, as the frame covered the overwhelming majority of mail processing space. The number of facilities and the associated facility space were adjusted as circumstances changed. The changes involved relatively little facility square footage and were concentrated among smaller facilities. In addition, the Postal Service incorporated a peak season adjustment into the analysis to reflect the fact that additional space is required annually to process mail during Quarter 1. Given all the factors affecting this study, the results represent an accurate estimate of the space distribution by operation and function at the end of Quarter 1 in FY 2019. A methodology was also presented in Proposal Nine to

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update the analysis, because both the equipment quantities and facility space change over time.

The facility cost study presented as part of the most recent ACR in USPS-FY19-8 contains a space distribution estimate that was originally developed over 20 years ago. The Postal Service is confident that the methodology presented in Proposal Nine represents an improvement over the methodology last presented in USPS-FY19-8.

b. The Neyman allocation calculations are provided in Table 2 attached at the end of this response. Note that the Neyman allocation for non-FSS sites used DBCS equipment counts (serving as a DBCS space proxy), whereas the allocation for FSS sites was based on FSS equipment counts. The quantities of AFSM100 and APBS/APPS equipment were used to develop *ex ante* estimates of coefficients of variation for the total space in the associated space categories, given the sample allocations as shown below, but were not used to determine the sample allocations among strata.

c. Confirmed that the targeted *ex ante* CVs for DBCS and AFSM100 space, using equipment counts to proxy for (unknown) space measurements, were 5 percent (or better). As shown in Table 5 of the FSUS, the *ex post* CVs for both categories were also below the 5 percent target.

The sample size determination was not determined from an explicit formula. With a single criterion for sampling precision, such as a single coefficient of variation, it is possible to solve numerically for the needed sample size to meet the criterion. With multiple criteria, such a direct solution was not possible. Rather, the sample size was determined from a search for sample sizes that produced proxy CVs in line with the

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target and that also had other desirable statistical features, such as avoiding very small stratum sample sizes (i.e., $n_h < 5$).

d. Confirmed. During the data collection process, some facilities were processed that were not in the original sample. In some cases, however, these facilities were the next facilities that would have been randomly sampled if the sample size estimate had been larger. In those cases, these facilities were include in the analysis.

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Table 2 Provided in Response to Chairman's Information Request No. 2, Question 1(b)

Calculation of Neyman Allocation (Non-FSS Sites)

Stratum Number	Stratum Population (Nh)	Stratum Weight (Wh) [1]	Mean [2]	Standard Deviation (Sh) [2]	Neyman Proportion [3]	Allocated n [4]
S1	75	0.391	7.65	4.75	0.208	11
S2	58	0.302	15.91	7.54	0.256	14
S3	37	0.193	26.19	16.68	0.361	20
S4	22	0.115	39.50	13.65	0.176	10
Total	192	1.000			1.000	55

Calculation of Neyman Allocation (FSS Sites)

Stratum Number	Stratum Population (Nh)	Stratum Weight (Wh) [1]	Mean [2]	Standard Deviation (Sh) [2]	Neyman Proportion [3]	Allocated n [4]
S5	24	0.585	2.38	1.31	0.713	18
S6	17	0.415	1.94	0.75	0.287	7
Total	41	1.000			1.000	25

Notes:

[1] $Wh = Nh / \text{Total of Nh}$

[2] Mean and Standard Deviation of DBCS equipment counts (non-FSS sites, FSS equipment counts (FSS sites)

[3] Neyman Proportion is $Wh * Sh$ divided by sum of $Wh * Sh$ over all strata

[4] Total sample size allocated on Neyman proportion (rounded)